

REMARKS

Claims 1, 2, 4-9, 11, 12, 14 and 16-19 are pending in this application. In the Office Action, the Examiner rejected Claims 1, 2, 7-9, 12 and 16-19 under 35 U.S.C. 102 as being fully anticipated by U.S. Patent 6,373,974 (Zeng); and Claims 1, 2, 16, 17 and 19 were further rejected under 35 U.S.C. 112 as being indefinite. The Examiner objected to Claims 4-6, 11 and 14 as being dependent upon rejected base claims, and indicated that these claims would be allowable if appropriately re-written.

Independent Claims 1, 2, 9, 12, 16, 17, 18 and 19 are being amended to better define the subject matters of these claims. Also, Claims 4, 11 and 14 are being rewritten in independent form including the limitations of Claims 2, 9 and 12 respectively.

It is believed that these amendments fully address the rejections of Claims 1, 2, 16, 17 and 19 under 35 U.S.C. 112. More specifically, in rejecting these claims as being indefinite, the Examiner objected to the way the phrase "second embedding data" is used in these claims. This opportunity is being taken to rephrase the claims to use this term in a manner more consistent with the way it is expressly used in the specification.

This second embedding data is the data that is extracted from the second data blocks or the second image blocks. This second embedding data may or might not be the same as the first embedding data, which are the data that are embedded into the first data or image blocks.

Claims 1, 2, 16, 17 and 19 are being amended to describe this more expressly, and, in particular, to indicate expressly that the second embedding data are the data extracted from the image or data blocks. This overcomes any indefiniteness in Claims 1, 2, 16, 17 and 19, and the

Examiner is respectfully requested to reconsider and to withdraw the rejection of these claims under 35 U.S.C. 112.

As mentioned above, Claims 4, 11 and 14 are being rewritten in independent form including the limitations of Claims 2, 9 and 12 respectively. Applicants wish to note that in amending Claim 4, care has been taken to describe the second embedding data as discussed above, rather than as described in previous Claim 1.

It is believed that these changes place Claims 4, 11 and 14, and Claims 5 and 6, which are dependent from Claim 4, in condition for allowance without any further argument. The Examiner is, consequently, asked to reconsider and to withdraw the objections to Claims 4-6, 11 and 14, and to allow these claims.

With respect to the rejection of the claims over Zeng, it is important to emphasize that there is a very important, general difference between the method described in Zeng and the present invention. In particular, Zeng is directed toward determining whether a test image is a copy of an original image, while the present invention is directed toward determining whether an image has been altered and, if so, where in the image the changes have been made.

Zeng discloses a digital watermarking procedure. Generally, in this procedure, a watermark is embedded in an original image; and then, to determine whether a second image is a copy of that original, the second image is tested to see if it has the watermark. Zeng is directed to providing a watermark that is difficult to forge, is sufficiently robust to withstand common signal processing, and that, if extracted from a test image, can be readily recognized.

The present invention is different. The object of this invention is to provide a procedure that is not only capable of detecting whether data contents or image data have been altered, but, if so, can also determine where those alterations have been made in the contents or image data.

Generally, in this procedure, image or content data is separated into set of first data blocks, and data are embedded into those data blocks, forming the data blocks into a second set of data blocks. Later, in order to determine if a second image is a copy of the first image, data is extracted from what nominally would be the second set of data blocks in the second image, and this data are looked at to determine, for each of the second data blocks, if any changes have been made to the data in the block.

Zeng does not show or suggest this block-by-block analysis. Moreover, there is no reason or motivation to modify Zeng to include such a block-by-block analysis. This is because Zeng is not concerned with where changes might have occurred. Zeng is only concerned with whether or not the watermark is found in the test image.

It is noted that, in Zeng, an image is separated into blocks, and block data are analyzed to determine if the watermark is present in the test image. This is not the same as determining whether each block has been changed for the purpose of identifying the location of the changes in the image.

Independent Claims 1, 2, 9, 12, 16, 17, 18 and 19 describe the above-described feature of the invention. More specifically, each of Claims 1, 2, 12 and 18 describe the feature of analyzing the second embedding data relative to the first embedding data to determine for each of the second image blocks, whether changes were made in said each of the second image blocks. Claim 9, which is directed to a data filling apparatus, describes the feature of detecting whether or not alteration was added to each of said second image blocks. Similarly, Claim 16, which is directed to a contents alteration detection method, describes the feature of detecting whether or not alteration was made to each of said second data blocks.

Claims 17 and 19 are directed to recording mediums in an alteration detection apparatus. Both of these claims set forth the step of detecting whether or not alteration was added to each of said second image blocks.

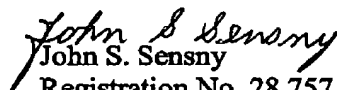
As discussed above, Zeng does not disclose or suggest the above-discussed features of Claims 1, 2, 9, 12, 16, 17, 18 and 19.

The other references of record have been reviewed, and these other references, whether they are considered individually or in combination, are no more pertinent than Zeng. In particular, none of these references discloses or suggests the block-by-block analysis used in the present invention to determine not only whether changes have been made, but also where those changes were made.

Because of the above-discussed differences between Claims 1, 2, 9, 12, 16, 17, 18 and 19 and the prior art, and because of the advantages associated with those differences, these claims patentably distinguish over the prior art and are allowable. Claims 7 and 8 are dependent from Claim 2 and are allowable therewith. The Examiner is, thus, respectfully requested to reconsider and to withdraw the rejection of Claims 1, 2, 7-9, 12 and 16-19 under 35 U.S.C. 103, and to allow these claims.

Every effort has been made to place this case in condition for allowance. For the reasons advanced above, the Examiner is asked to reconsider and to withdraw the objections to Claims 4-6, 11 and 14, and the rejection of Claims 1, 2, 7-9, 12 and 16-19, and to allow Claims 1, 2, 4-9, 11, 12, 14 and 16-19. If the Examiner believes that a telephone conference with Applicants' Attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,


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